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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,969	03/28/2001	Masaki Ohya	14458	4222

7590 10/23/2002

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EXAMINER

RODRIGUEZ, ARMANDO

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/819,969

Applicant(s)

OHYA ET AL.

Examiner

Armando Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


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TECHNOLOGY CENTER 2800

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Regarding the 35 USC 112 rejection of claims 9-12, which pertain to the difference of refractive index parallel to the layers applicant is reminded that it is impermissible importation of subject matter from the specification into the claim. See MPEP 2111.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2,4,6,8-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear within the claim language of claims 2,4,6,8-12, which layer has a difference of refractive index when applicant recites the limitation of "an effective refractive index difference parallel to the layers", since the claim recites limitations to cladding layers and multi-quantum well layers.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al (PN 4,961,197).

The abstract and columns 17-22 examples 8-14 disclose a self sustained pulsating semiconductor laser having a first cladding, an active layer and a second cladding layer.

The active layer may have a single quantum well or a multi-quantum well (MQW) and the thickness of the active layers is within the range of .05 μm -.08 μm , see columns 3 and 4. Column 4 discloses the active layers having an effective refractive index within a range of 8×10^{-4} and 5×10^{-3} . Column 17 discloses an MQW having 5 wells.

Column 20 discloses one of the cladding layers having a thickness within the range of .4 μm - .6 μm and a density of $6 \times 10^{17} \text{ cm}^{-3}$.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (PN 4,961,197).

The abstract and columns 17-22 examples 8-14 disclose a self sustained pulsating semiconductor laser having a first cladding, an active layer and a second cladding layer.

The active layer may have a single quantum well or a multi-quantum well (MQW) and the thickness of the active layers is within the range of $.05 \mu\text{m}$ - $.08 \mu\text{m}$, see columns 3 and 4. Column 4 discloses the active layers having an effective refractive index within a range of 8×10^{-4} and 5×10^{-3} . Column 17 discloses an MQW having 5 wells.

Column 20 discloses one of the cladding layers having a thickness within the range of $.4 \mu\text{m}$ - $.6 \mu\text{m}$ and a density of $6 \times 10^{17} \text{ cm}^{-3}$.

Tanaka et al discloses the claimed invention except for the cladding layer having a density of $5 \times 10^{17} \text{ cm}^{-3}$, but rather having a density of $6 \times 10^{17} \text{ cm}^{-3}$.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to design the cladding layer with a density of $5 \times 10^{17} \text{ cm}^{-3}$ to obtain a self sustained pulsating semiconductor laser because the general conditions of the invention have been disclosed by the prior art thereby discovering an optimum or working conditions involves routine skill in the art.

Regarding claims 5-8.

Tanaka et al does not disclose the misorientation of the semiconductor substrate, however it would have been an obvious matter of design choice to provide the misorientation in the laser system, since the misorientation of the semiconductor substrate does not solve any stated problem because applicant has clearly disclosed

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and implied on page 12 lines 25-28 that the device can perform as claimed regardless of the orientation of the substrate.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Armando Rodriguez whose telephone number is (703) 308-6218. The examiner can normally be reached on 10-hour day / M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-4881.


Armando Rodriguez
Examiner
Art Unit 2828


Paul Ip
Supervisor
Art Unit 2828

AR/PI
October 18, 2002